



Name: M. Umair Farooq | Quiz Subject:

## Chemistry

Time Remaining: 45/45 (Minutes)

Q.1

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

The term active mass represent the concentration in:

- a. Moles
- b. Mole fraction
- c.  $\text{mol}^{-1}\text{dm}^{-3}$
- d.  $\text{moledm}^{-3}$

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Correct Answer:

- A
- B
- C
- D

Next



Time Remaining: 44/45 (Minutes)

Q.2

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

The value of  $K_p$  becomes equal to  $K_c$  when:

- a. Total number of moles of reactants are greater than total number of moles of products.
- b. Total number of moles of products are greater than total number of moles of reactants.
- c. The difference of total moles of reactants and total moles of products is zero.
- d. The difference of total moles of reactants and total moles of products is less than zero.

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Correct Answer:

A  B  C  D

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Time Remaining: 44/45 (Minutes)

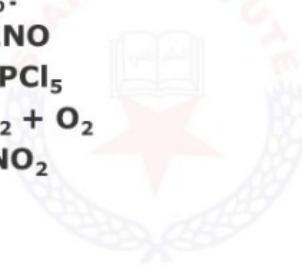
Q.3

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

For which one of the following the value of  $K_c$  is greater than  $K_p$ ?

- a.  $N_2 + O_2 \rightleftharpoons 2NO$
- b.  $PCl_3 + Cl_2 \rightleftharpoons PCl_5$
- c.  $2SO_3 \rightleftharpoons 2SO_2 + O_2$
- d.  $N_2 O_4 \rightleftharpoons 2NO_2$



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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 44/45 (Minutes)

Q.4

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

If  $[\text{Products}]/[\text{reactants}]$  ratio is less than given  $K_c$  for a reaction then:

- a. concentration of products is less than of reactants
- b. The reaction will move in reverse direction to attain equilibrium.
- c. The reaction is in equilibrium.
- d. The reaction will move forward direction to attain the equilibrium.

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Correct Answer:

- A     B     C     D

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Time Remaining: 44/45 (Minutes)

Q.5

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

If  $K_c$  for a reaction is very small, then which statement of the following is incorrect?

- a. The rate of forward reaction is very low as compared to rate of reverse reaction
- b. The reaction mixture largely composed of reactants
- c. The products are highly unstable as compared of reactants
- d. The forward reaction is almost complete

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Correct Answer:

A  B  C  D

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Time Remaining: 43/45 (Minutes)

Q.6

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

**The change in pressure or volume will affect the equilibrium state of the system when:**

- a. System is in solid state
- b. System is in liquid state
- c. Total moles of gaseous reactants either greater or lesser than the total moles of gaseous products.
- d. Total moles of gaseous reactants and total moles of gaseous products are equal.

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 43/45 (Minutes)

Q.7

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

In the saturated solution of KI following equilibrium exist.

$$KI_{(s)} \rightleftharpoons KI_{(aq)} \Delta H = +21.4 \text{ KJmol}^{-1}$$

Which of the following condition is favorable for crystallization.

- a. Increase in pressure
- b. Decrease in temperature
- c. Increase in temperature
- d. Increasing amount of H<sub>2</sub>O

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 43/45 (Minutes)

Q.8

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

The relation b/w  $K_p$  and  $K_c$  is given by:

- a.  $K_c = k_p (p)^{-\Delta n}$
- b.  $K_p = k_p (RT)^{\Delta n}$
- c.  $K_p = k_c (RT)^n$
- d.  $K_p = k_c (p)^{2n}$

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 43/45 (Minutes)

Q.9

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

The units of equilibrium constant ( $K_c$ . For the reaction  $N_2 + 3H_2 \rightleftharpoons 2NH_3 + 92.2\text{ Kj}$ ), will be:

- a.  $dm^{+6} mol^{-2}$
- b. Mole $^{+2} dm^{-6}$
- c. Mole  $dm^{-3}$
- d. Mole $^{-1} dm^{+3}$

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Correct Answer:

A    B    C    D

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Time Remaining: 43/45 (Minutes)

Q.10

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

In which of the following reactions K<sub>c</sub> & K<sub>p</sub> will have the same numerical value?

- a.  $\text{PCl}_5 \rightleftharpoons \text{PCl}_3 + \text{Cl}_2$
- b.  $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$
- c.  $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3$
- d.  $\text{N}_2 + \text{O}_2 \rightleftharpoons 2\text{NO}$

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Correct Answer:

- A
- B
- C
- D

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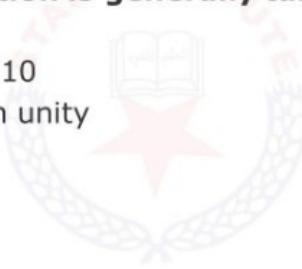
Q.11

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

The active mass of a solid in determining "Kc" value of a reaction is generally taken as:

- a. 10
- b. less than 10
- c. more than unity
- d. Constant



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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 42/45 (Minutes)

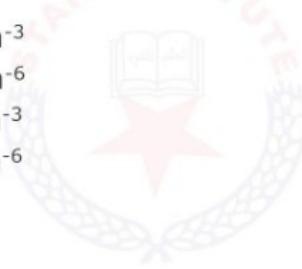
Q.12

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

The unit of ionic product ( $K_w$ ) of water is:

- a. Mole $^{-1}$  dm $^{-3}$
- b. Mole $^{-2}$  dm $^{-6}$
- c. Mole $^{-2}$  dm $^{-3}$
- d. Mole $^{+2}$ dm $^{-6}$



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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 42/45 (Minutes)

Q.13

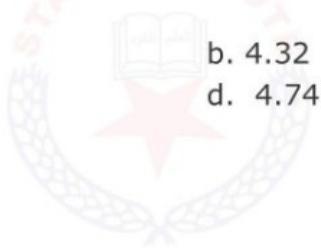
Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

The  $P_{K_a}$  of  $\text{CH}_3\text{COOH}$  is 4.74. The pH of equimolar solution of  $\text{CH}_3\text{OOH}$  and  $\text{CH}_3\text{COONa}$ :

- a. 4.79
- c. 4.42

- b. 4.32
- d. 4.74



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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 42/45 (Minutes)

Q.14

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

If  $\text{NH}_3$  gas is dissolved in  $\text{H}_2\text{O}$ , pH of the solution:

- a. May increase or decreases
- b. Increases
- c. not affected
- d. decreases

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Correct Answer:

A  B  C  D

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## Chemistry

Time Remaining: 42/45 (Minutes)

Q.15

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

A solution is said to be saturated with respect to the electrolyte, if its:

- a. Ionic product <  $K_{sp}$
- b. ionic product >  $K_{sp}$
- c. Ionic product =  $K_{sp}$
- d. (ionic product)<sup>2</sup> =  $K_{sp}$

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 42/45 (Minutes)

Q.16

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

If  $\text{CaCl}_2$  is added to saturated solution of Calcium Oxalate, the solubility of calcium oxalate:

- a. Decreases
- b. Increases
- c. Equal
- d. Moderate

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Correct Answer:

A  B  C  D

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Time Remaining: 42/45 (Minutes)

Q.17

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

If an acid has  $pK_a = 3.4$ , what will be the value of  $pK_b$  for its conjugate base?

- a. 8.4
- b. 10.6
- c. 12.3
- d. 9.6

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 42/45 (Minutes)

Q.18

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

Which one of the following relation is incorrect?

- a.  $pK_a + pK_b = 14$
- b.  $pK_w = \log 1/K_w$
- c.  $K_a + K_b = 14$
- d.  $K_w = K_a \cdot K_b$

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Correct Answer:

A  B  C  D

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Time Remaining: 42/45 (Minutes)

Q.19

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

Which one of the following condition is required for the precipitation?

- a.  $K_{sp} >$  Ionic product
- b. Ionic product  $> K_{sp}$
- c.  $K_{sp} =$  Ionic product
- d. none of given

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Correct Answer:

A  B  C  D

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Time Remaining: 41/45 (Minutes)

Q.20

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

**K<sub>p</sub> is always greater than K<sub>c</sub> if**

- a. Number of mole of reactants are greater than products.
- b. Number of mole of products are greater than reactants.
- c. If both reactants and products carry same number of moles
- d. All of these

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Correct Answer:

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Time Remaining: 41/45 (Minutes)

Q.21

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

In the formation of ammonia if pressures of the system is increased then the reaction will move in which direction  $N_2 + 3H_2 \rightleftharpoons 2NH_3$

- a. moves in backward
- b. moves in forward
- c. Remains in equilibrium
- d. none

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Correct Answer:

A  B  C  D

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Time Remaining: 41/45 (Minutes)

Q.22

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

If the pH of the solution during the reaction is expected to decrease then the buffer used must possess a pH

- a. Slightly lower than the expected pH
- b. Slightly higher than the expected pH
- c. Exactly equal to the expected pH
- d. All of these

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Correct Answer:

A  B  C  D

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Time Remaining: 41/45 (Minutes)

Q.23

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

In reaction  $A+B \rightarrow AB$  if the concentration of A & B is tripled then the reaction will:

- a. Increases 9 times
- b. Increases 3times
- c. Decreases to half time
- d. Decreases 6 times

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Correct Answer:

A  B  C  D

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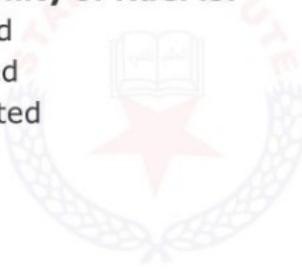
Q.24

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

When HCl is passed from a saturated solution of NaCl the solubility of NaCl is:

- a. Increased
- b. decreased
- c. not affected
- d. none



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Correct Answer:

- A
- B
- C
- D

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# Chemistry

Time Remaining: 41/45 (Minutes)

Q.25

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

How catalysts decrease the activation energy?

- a. By changing path of reaction
- b. by giving energy to reactants
- c. by reacting with reactants
- d. none of given

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Correct Answer:

A    B    C    D

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Time Remaining: 41/45 (Minutes)

Q.26

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

Which reaction will proceed in forward direction  
to attain equilibrium state

- a.  $K_c = 10$
- b.  $K_c = 10^{-4}$
- c.  $K_c = 10^2$
- d.  $K_c = 10^{-2}$

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 41/45 (Minutes)

Q.27

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

Almost forward reaction is complete when value of  $K_c$  is:

- a. very high
- b. very small
- c. neither large nor very small
- d. zero

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Correct Answer:

A  B  C  D

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Time Remaining: 40/45 (Minutes)

Q.28

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

In which gaseous equilibrium more products will be formed by increasing pressure?

- a.  $N_2 + 3H_2 \rightarrow 2NH_3$
- b.  $PCl_5 \rightarrow PCl_3 + Cl_2$
- c.  $N_2 + O_2 \rightarrow 2NO$
- d.  $H_2 + I_2 \rightarrow 2HI$

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 40/45 (Minutes)

Q.29

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

The solubility of those salts increases with increases in temperature which have?

- a.  $\Delta H = -ve$
- b.  $\Delta H = 0$
- c.  $\Delta H = +ve$
- d. none of given

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 40/45 (Minutes)

Q.30

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

**Maximum yield of NH<sub>3</sub> can be achieved by:**

- a. Low pressure, low temperature and continual removal of N<sub>2</sub>
- b. High temperature, low pressure and continual addition of NH<sub>3</sub>
- c. High pressure, low temperature and continual removal of NH<sub>3</sub>
- d. High temperature, high pressure and continual removal of H<sub>2</sub>

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Correct Answer:

A  B  C  D

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Time Remaining: 40/45 (Minutes)

Q.31

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

The catalyst used in  $\text{NH}_3$  synthesis by Haber's process is the pieces of iron crystals embedded in a fused mixture of:

- a.  $\text{Cr}_2\text{O}_3 \cdot \text{MgO} \cdot \text{PbO}_2$
- b.  $\text{Al}_2\text{O}_3 \cdot \text{NiO} \cdot \text{CO}_2$
- c.  $\text{MgO} \cdot \text{Al}_2\text{O}_3 \cdot \text{SiO}_2$
- d.  $\text{ZnO} \cdot \text{Cr}_2\text{O}_3 \cdot \text{SiO}_2$

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 40/45 (Minutes)

Q.32

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

The solubility of LiCl and Li<sub>2</sub>CO<sub>3</sub> decreases with increases in temperature because their heats of solution are:

- a. +ve
- b. -ve
- c. zero
- d. very close to zero

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Correct Answer:

A  B  C  D

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Time Remaining: 40/45 (Minutes)

Q.33

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

**What is the relation between  $K_w$  and temperature?**

- a.  $K_w$  is independent of temperature
- b.  $K_w$  is directly proportional to temperature
- c.  $K_w$  is inversely proportional to temperature
- d.  $K_w$  is inversely proportional to square root of temperature.

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Correct Answer:

A  B  C  D

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Time Remaining: 40/45 (Minutes)

Q.34

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

When 1 mole of water is dissociated into ions at 25°C, what should be the suitable value?

- a.  $10^{-3}$
- b.  $10^{-5}$
- c.  $10^{-7}$
- d.  $10^{-14}$



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Correct Answer:

- A
- B
- C
- D

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## Chemistry

Time Remaining: 40/45 (Minutes)

Q.35

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

**Water is a neutral compound but when an acid added to it, then in the resulting solution:**

- a.  $[\text{OH}^-] < [\text{H}^+]$
- b.  $[\text{OH}^-] = [\text{H}^+]$
- c.  $[\text{H}^+] < [\text{OH}^-]$
- d.  $[\text{OH}^-] \approx [\text{H}^+]$

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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 40/45 (Minutes)

Q.36

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

The acid is moderately strong when the value of  $K_a$  is:

- a. Greater than  $10^{-3}$
- b. Less than 1
- c. 1 to  $10^{-3}$
- d. None of given



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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 39/45 (Minutes)

Q.37

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

**Which statement is incorrect?**

- a. Stronger the acid, weaker its conjugate base
- b. Stronger the conjugate acid, weaker its acid
- c. Weaker the conjugate base, stronger its acid
- d. Weaker the base, stronger its conjugate acid.

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Correct Answer:

A  B  C  D

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Time Remaining: 39/45 (Minutes)

Q.38

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

$K_a$  value for  $H_2S$  is  $1.0 \times 10^{-7}$ ? What will be its  $pK_a$ ?

- a. -9
- b.  $10^{-2}$
- c. 7
- d.  $10^{-7}$ .



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Correct Answer:

- A
- B
- C
- D

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Time Remaining: 39/45 (Minutes)

Q.39

## Test 7 CHEMICAL EQUILIBRIUM

CHEMISTRY NMDCAT

**The solubility of a less soluble salt in water is:**

- a. Increased by the addition of more soluble salt
- b. Decreased by the addition of less soluble salt having a common ion.
- c. Decreased by the addition of less soluble salt having a common ion.
- d. Decreased by the addition of more soluble salt having a common ion.

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Correct Answer:

A  B  C  D

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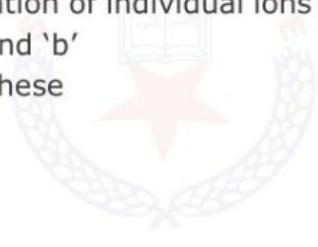
Q.40

Test 7 CHEMICAL  
EQUILIBRIUM

CHEMISTRY NMDCAT

**From solubility product value we can calculate:**

- a. Solubility of a solute
- b. concentration of individual ions
- c. Both 'a' and 'b'
- d. None of these



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Correct Answer:

- A
- B
- C
- D

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### Q. 1

The term active mass represent the concentration in:

- a. Moles
- b. mole fraction
- c.  $mol^{-1} dm^{-3}$
- d.  $mol dm^{-3}$

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**Q. 2**

The value of  $K_p$  becomes equal to  $K_c$  when:

- a. Total number of moles of reactants are greater than total number of moles of products.
- b. Total number of moles of products are greater than total number of moles of reactants.
- c. **The difference of total moles of reactants and total moles of products is zero.**
- d. The difference of total moles of reactants and total moles of products is less than zero.

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**Q. 3**

For which one of the following the value of  $K_c$  is greater than  $K_p$  ?

- a.  $N_2 + O_2 \rightleftharpoons 2NO$
- b.  $PCl_3 + Cl_2 \rightleftharpoons PCl_5$
- c.  $2SO_3 \rightleftharpoons 2SO_2 + O_2$
- d.  $N_2O_4 \rightleftharpoons 2NO_2$

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**Q. 4**

if  $[products]/[reactants]$  ratio is less than given  $K_c$  for a reaction then:

- a. concentration of product is less than of reactants
- b. The reaction will move in reverse direction to attain equilibrium.
- c. The reaction is in equilibrium
- d. **The reaction will move forward direction to attain the equilibrium**

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**Q. 5**

If  $K_c$  for a reaction is very small, then which statement of the following is incorrect?

- a. The rate of forward reaction is very low as compared to rate of reverse reaction
- b. The reaction mixture largely composed of reactants
- c. The products are highly unstable as compared of reactants
- d. **The forward reaction is almost complete**

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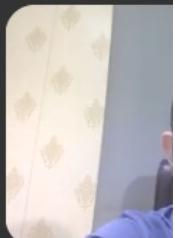


## Q. 6

The change in pressure or volume will affect the equilibrium state of the system when:

- a. System is in solid state
- b. System is in liquid state
- c. Total moles of gaseous reactants either greater or lesser than the total moles of gaseous products.
- d. Total moles of gaseous reactants and total moles of gaseous products are equal.

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### Q. 7

In the saturated solution of KI following equilibrium exist.



Which one of the following condition is favorable for crystallization?

- a. Increase in pressure
- b. **decrease in temperature**
- c. Increase in temperature
- d. Increasing amount of  $H_2O$

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### Q. 8

The relation b/w  $K_p$  and  $K_c$  is given by:

- a.  $K_c = K_p (p)^{-\Delta n}$
- b.  $K_p = K_c (RT)^{\Delta n}$
- c.  $K_p = K_c (RT)^n$
- d.  $K_p = K_c (RT)^{2n}$

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**Q. 9**

The units of equilibrium constant ( $K_c$  for the reaction  $N_2 + 3H_2 \rightleftharpoons 2NH_3 + 92.2\text{ Kj}$ ), will be:

- a.  $dm^{+6} mol^{-2}$
- b.  $Mole^{+2} dm^{-6}$
- c.  $Mole dm^{-3}$
- d.  $Mole^{-1} dm^{+3}$

$$K_c = \frac{[NH_3]^2}{[N_2][H_2]^3}$$

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**Q. 10**

In which of the following reactions K<sub>c</sub> & K<sub>p</sub> will have the same numerical value?

- a.  $\text{PCl}_5 \rightleftharpoons \text{PCl}_3 + \text{Cl}_2$
- b.  $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$
- c.  $2\text{SO}_2 + \text{O}_2 \rightleftharpoons 2\text{SO}_3$
- d.  $\text{N}_2 + \text{O}_2 \rightleftharpoons 2\text{NO}$

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**Q. 11**

**The active mass of a solid in determining “Kc” value of a reaction is generally taken as:**

- a. 10
- b. less than 10
- c. more than unity
- d. Constant

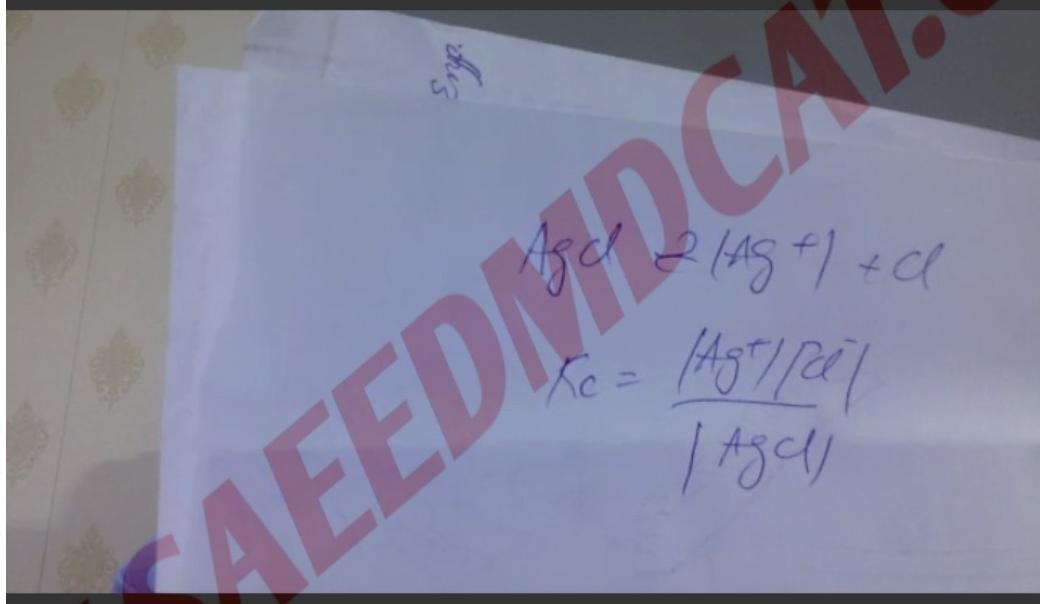
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## Q. 11

The active mass of a solid in determining "Kc" value of a reaction is generally taken as:

- a. 10
- b. less than 10
- c. more than unity
- d. Constant

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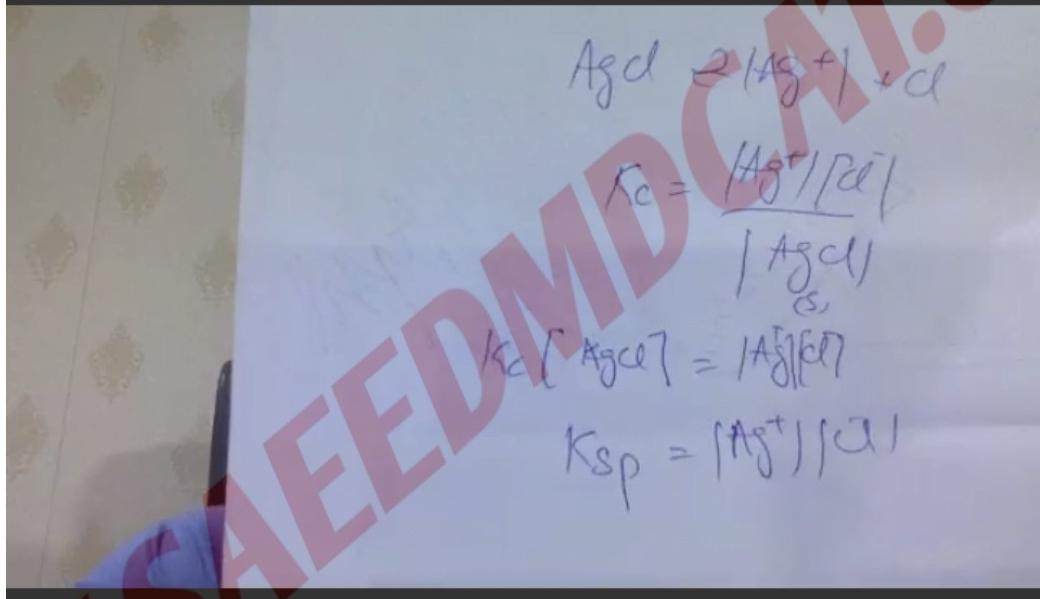
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Q. 11

The active mass of a solid in determining "Kc" value of a reaction is generally taken as:

- a. 10
- b. less than 10
- c. more than unity
- d. Constant

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**Q. 12**

The unit of ionic product ( $K_w$ ) of water is:

- a.  $Mole^{-1} dm^{-3}$
- b.  $Mole^{-2} dm^{-6}$
- c.  $Mole^{-2} dm^{-3}$
- d.  $Mole^{+2} dm^{-6}$

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**Q. 13**

The  $PK_a$  of  $CH_3COOH$  is 4.74. The pH of equimolar solution of  $CH_3COOH$  and  $CH_3COONa$ :

- a. 4.79
- b. 4.32
- c. 4.42
- d. **4.74**

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**Q. 14**

If  $NH_3$  gas is dissolved in  $H_2O$ , pH of the solution:

- a. May increases or decreases
- b. increases**
- c. not affected
- d. decreases

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**Q. 15**

A solution is said to be saturated with respect to the electrolyte, if its:

- a. Ionic product  $< K_{sp}$
- b. ionic product  $> K_{sp}$
- c. **Ionic product =  $K_{sp}$**
- d. ( ionic product )<sup>2</sup> =  $K_{sp}$

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**Q. 16**

If  $\text{CaCl}_2$  is added to saturated solution of Calcium Oxalate, the solubility of calcium oxalate:

- a. Decreases
- b. increases
- c. equal
- d. moderate

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**Q. 17**

If an acid has  $pK_a = 3.4$ , what will be the value of  $pK_b$  for its conjugate base?

- a. 8.4
- b. 10.6
- c. 12.3
- d. 9.6

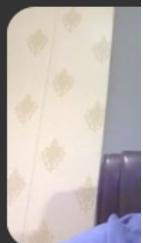
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**Q. 18**

**Which one of the following relation is incorrect?**

- a.  $pK_a + pK_b = 14$
- b.  $pK_w = \log 1/K_w$
- c.  $K_a + K_b = 14$
- d.  $K_w = K_a \cdot K_b$

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**Q. 19**

**Which one of the following condition is required for the precipitation?**

- a.  $K_{sp} >$  Ionic product
- b. Ionic product  $> K_{sp}$
- c.  $K_{sp} =$  Ionic product
- d. none of given

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**Q. 20**

**K<sub>p</sub> is always greater than K<sub>c</sub> if**

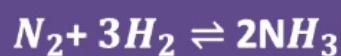
- a. Number of mole of reactants are greater than products.
- b. Number of mole of products are greater than reactants.**
- c. If both reactants and products carry same number of moles
- d. All of these

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**Q. 21**

In the formation of ammonia if pressures of the system is increased then the reaction will move in which direction



- a. Moves in forward
- b. moves in backward
- c. Remains in equilibrium
- d. none

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**Q. 22**

If the pH of the solution during the reaction is expected to decrease then the buffer used must possess a pH

- a. Slightly lower than the expected pH
- b. Slightly higher than the expected pH
- c. Exactly equal to the expected pH
- d. All of these

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**Q. 23**

In reaction  $A+B \rightarrow AB$  if the concentration of A & B is tripled then the reaction will:

- a. Increase 9 times
- b. increase 3 times
- c. Decrease to half time
- d. decrease 6 times

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**Q. 24**

**When HCl is passed from a saturated solution of NaCl the solubility of NaCl is:**

- a. Increased
- b. decreased**
- c. not affected
- d. none

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**Q. 25****How catalysts decrease the activation energy?**

- a. By changing path of reaction
- b. by giving energy to reactants
- c. by reacting with reactants
- d. none of given

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**Q. 26**

**Which reaction will proceed in forward direction to attain equilibrium state:**

- a.  $K_c = 10$
- b.  $K_c = 10^{-4}$
- c.  $K_c = 10^2$
- d.  $K_c = 10^{-2}$

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**Q. 27**

Almost forward reaction is complete when value of  $K_c$  is:

- a. Very high
- b. very small
- c. neither large nor very small
- d. zero

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**Q. 28**

In which gaseous equilibrium more products will be formed by increasing pressure?

- a.  $N_2 + 3H_2 \rightarrow 2NH_3$
- b.  $PCl_5 \rightarrow PCl_3 + Cl_2$
- c.  $N_2 + O_2 \rightarrow 2NO$
- d.  $H_2 + I_2 \rightarrow 2HI$

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**Q. 29**

The solubility of those salts increases with increase in temperature which have?

- a.  $\Delta H = -ve$
- b.  $\Delta H = 0$
- c.  $\Delta H = +ve$
- d. none of given

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**Q. 30**

**Maximum yield of  $NH_3$  can be achieved by:**

- a. Low pressure, low temperature and continual removal of  $N_2$
- b. High temperature, low pressure and continual addition of  $NH_3$
- c. **High pressure, low temperature and continual removal of  $NH_3$**
- d. High temperature, high pressure and continual removal of  $H_2$

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**Q. 31**

The catalyst used in  $NH_3$  synthesis by Haber's process is the pieces of iron crystals embedded in a fused mixture of:

- a.  $Cr_2O_3$ .  $MgO$ .  $PbO_2$
- b.  $Al_2O_3$ .  $NiO$ .  $CO_2$
- c. **MgO.  $Al_2O_3$ .  $SiO_2$**
- d.  $ZnO$ .  $Cr_2O_3$ .  $SiO_2$

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**Q. 32**

The solubility of LiCl and  $Li_2CO_3$  decreases with increases in temperature because their heats of solution are:

- a. + ve
- b. - ve
- c. zero
- d. very close to zero

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**Q. 33**

**What is the relation between  $K_w$  and temperature?**

- a.  $K_w$  is independent of temperature
- b.  $K_w$  is directly proportional to temperature
- c.  $K_w$  is inversely proportional to temperature
- d.  $K_w$  is inversely proportional to square root of temperature.

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**Q. 34**

**When 1 mole of water is dissociated into ions at 25°C, what should be the suitable value?**

- a.  $10^{-3}$
- b.  $10^{-5}$
- c.  $10^{-7}$
- d.  $10^{-14}$

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**Q. 35**

Water is a neutral compound but when an acid added to it, then in the resulting solution:

- a.  $[OH^-] < [H^+]$
- b.  $[OH^-] = [H^+]$
- c.  $[H^+] < [OH^-]$
- d.  $[OH^-] \approx [H^+]$

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**Q. 36**

**The acid is moderately strong when the value of  $K_a$  is:**

- a. Greater than  $10^{-3}$
- b. less than 1
- c.  **$1$  to  $10^{-3}$**
- d. none of given

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**Q. 37**

Which statement is incorrect?

- a. Stronger the acid, weaker its conjugate base
- b. **Stronger the conjugate acid, weaker its acid**
- c. Weaker the conjugate base, stronger its acid
- d. Weaker the base, stronger its conjugate acid.

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**Q. 38**

$K_a$  value for  $H_2S$  is  $1.0 \times 10^{-7}$ ? What will be its  $pK_a$ ?

- a. -9
- b.  $10^{-2}$
- c. 7
- d.  $10^{-7}$

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**Q. 39**

The solubility of a less soluble salt in water is:

- a. Increased by the addition of more soluble salt
- b. Decreased by the addition of less soluble salt having a common ion.
- c. Decreased by the addition of less soluble salt having a common ion.
- d. Decreased by the addition of more soluble salt having a common ion.**

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**Q. 40**

**From solubility product value we can calculate:**

- a. Solubility of a solute
- b. concentration of individual ions
- c. Both 'a' and 'b'
- d. None of these

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